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ABSTRACT

In order to make information about technical writing more available, the South Central Modern Language Association (SCMLA) has collected the papers not subject to copyright restrictions that were presented at the technical writing section of its 1987 meeting. The essays cover a wide range of topics in technical writing pedagogy and research. The articles and their authors are as follows: (1) "Spoken into Print: Rhetorical Analyses from a New Medium" (Esther C. Huckaby); (2) "Thinking in Language: The Fourth Protocol" (Anita Ross); (3) "Determining Verbal/Visual Orientation: A Heuristic" (Sam Dragga); (4) "Teaching 'On-Site' Technical Writing Courses" (Sara Brown); and (5) "Teaching Technical Writing to ESL Students" (Gail Nash). (ARH)

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SCMLA:

Technical Writing

PROCEEDINGS

Houston

1987

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PREFACE

The SCMLA Technical Writing Section offices have collected the papers presented in Houston, October, 1987. By doing so, we hope to not only provide those attending the session with a record of the presentations, but to move forward in making information about technical writing more generally available.

We regret that we cannot present all the papers, but copyright restrictions make that impossible.

I want finally to take this opportunity to invite you to submit proposals for next year's session. You can get information from next year's chair:

Professor Alan Love
Box 298
San Antonio College
San Antonio, TX 78284

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SPOKEN INTO PRINT: RHETORICAL ANALYSES FROM A NEW MEDIUM

By Esther C. Huckaby
Texas Christian University

Abstract

A study of 534 documents passing to and from an executive in a major American corporation showed that these documents were different from earlier ones from the same writers, observed over several years. They were composed on the corporations's new electronic mail system and might have been shaped by the possibilities and limitations of their medium.

I considered their context, invention, and structure, and found them different traditionally composed business correspondence: more spontaneous and expressive, less organized and polished. Although like speech in content and structure, their effect upon their readers is that of typed print.

SPOKEN INTO PRINT: RHETORICAL ANALYSES FROM A NEW MEDIUM

> Simplicity, simplicity, simplicity! I say, let your affairs be as two or three, and not a hundred or a thousand; instead of a million count half a dozen, and keep your accounts on your thumb nail.
>
> Henry David Thoreau, Walden

In a prophetic vision of the 1980's, Henry David Thoreau would have been no more impressed with an electronic mail system than he had been with Concord's busy Mill-dam or with the daily news. (He thought them both to be so superficial that they lacked reality.) Still, he might have had to concede it to be wondrous that many accounts of thousands of millions can now be kept on a silicon chip much smaller than his thumb nail. Moreover, those accounts can now be placed on that chip by a person with no special expertise, stored indefinitely, retrieved quickly by another novice, caused to appear upon a lighted screen, to be reprinted ad infinitum, or to be transmitted to readers across the world, all more quickly than Thoreau could have lit his lamp and written a page in his journal.

And these wonders pertain not to accounting only. Whereas the term **computer** has for a long time referred to mechanical means of calculating mathematical data, within recent years, it has come to refer also to electronic production or storage of words and to printers. A system in which numerous stations transmit messages to one another through a central storage computer is called an **electronic mail system**, and an office so equipped is said to be **automated.**

My study originated as a plan to make a rhetorical

description of the documents passing to and from Scott South, the senior executive in one division of a major American corporation, who heads a computer service division of 1500 employees in Atlanta: Southern Compserv, part of Gamma Corporation, based in Chicago. To protect privacy, names, places, titles, and other specifics have been changes.

When the documents were collected, it was evident at once that they were different from earlier ones I had seen from this same group of writers, observed over several years. While I could not conclude that all the differences had been caused by the change in medium, I did decide to look at these 534 documents, written about four months after the changeover to the electronic mail system, to see how they might have been shaped by the possibilities and limitations of their medium.

In my study I considered the writing context, invention, and structure of this work as revealed in the style. I also enquired as to the effects of these messages upon their readers.

The 534 documents were divided into three groups according to aim: referential, persuasive, and mixed referential and persuasive. From each group, two texts were chosen at random, since Scott South often reads all documents in the sequence in which they come in, without any screening or selection.

Example 1 - Referential

Date: 16-Feb-1985 16:09
From: Scott South (SOUTH, SR)
To: Henry Winston (WINSTON, HI)
Subject: Account for Dilman Williams

**********Comments**********

When will you be able to get Williams on the system?

**********Forwarded message/document follows:**********

Date: 1-Feb-1985
From: Henry Winston (WINSTON, HI)
To: Scott South (SOUTH, SR)
CC: Will White (WHITE,WM)
Return-Receipt requested
Subject: Unplanned accounts

This morning Dilman Williams stopped by and told me that he had been told that he, Vic Vermillion, and Don Thomas were designated as Key Communicators. This had happened some time ago. He said that he understood that he was to access a file with facts in it pertaining to the Company's press problems.

Of course, Vic Vermillion is on the system; so the questions is "Do you want me to schedule Williams and Thomas for training and accounts?"

Our next scheduled group of trainee, includes Day, Wyatt, and Mike Maroon so far. This Training class probably will occur about the first of February.

Henry.

This memo is written to Scott South by Henry Winston, an older employee, not highly ranked, but with special responsibilities for managing the electronic mail system. Since Winston has a desktop workstation and access to South's system, he communicates with South much more frequently than other employees of similar rank, and in the months since the sample was taken, he has used this access to write memos to South, paternalistically advising him of grapevine gossip and furnishing him with career advice.

Winston initiates the memo to ask one question and to inform South of several related facts. Typically the document is low in emotion and high in verifiable data. So predictable is the declarative sentence pattern of a referential document that Winston emphasized his question by expressing it directly and in quotation marks. The memo is not highly reader oriented; except for the question, a request for authorization, it could be read by almost anyone. The text lacks Winston's normal relaxed humor and expressiveness. The writing itself seems self-conscious: the overstrong punctuation (; and extra comma), overuse of capitals (Course, Train), the unusual presentation of the question, and the awkward use of **occur** suggest an attempt at formality. Certainly there has been no formal organization, and Winston's stilted language and typing may be overcompensation for not having thought through his message before sending it.

His lack of organization of the text as a whole is evident after the first paragraph, which has been organized coherently on the principle of surprise value, as the announcement of Williams's visit to Winston is not completely predictable. The news is followed by details about the visit. It then becomes evident, however, that the question posed by Winston is the purpose of the memo. Had Winston stopped there, then the text in its entirety might have been viewed as of mixed referential and persuasive aim, since the question is actually a demand for an answer. But Winston goes on with pieces of information not shown to be related either to his opening announcement or to his question, so that the text as a whole is preponderantly referential, but not consciously structured.

This sample also includes a meta message. South "returns" Henry's earlier memo to him with a question in the same way that in earlier years he would have returned a memo with a handwritten note. South's message does not answer the question in Henry's memo, but asks a question which assumes that he has given Henry approval. It is not possible to tell South intended his message to be an answer, or whether he sends the whole thing to Winston as a reminder. Some earlier assent to Williams' being put on the system may well have taken some other form, since an assumption

of approval seems to lie behind the meta message.

Example 2 - Referential

Date: 8-Feb-1985 17:18
From: Vic Vermillion (VERMILLION, VIC)
To: Scott South (SOUTH, SR)
CC: Barbara Benton (BENTON, BJ)
Return-Receipt Requested
Subject: Engineering Overhead Meeting

K. Sturdivant spent the afternoon in the Engineering OH Review Meeting. He said that B. Corton spent the afternoon on the telephone getting data to answer questions that primarily involved indirect headcount. They got into a lot of detail on where the new heads were going. The Review Team also wanted to know.

1. What is Productivity Labor?
2. Why increase in job shoppers?
3. Why direct paid absenses excessive?

Hemmings was leading the activity and asked most of the questions. B. Corton, R. Sherwood, D. Young were there for Engineering.

Hemmings asked Sturdivant to provide data on TWR 1984 actuals and 1985 operating plan. Sturdivant asked R. Smith for data and Ron is pulling together. B. Corton also called Smith to request Engineering 1984 actuals and 1985 plan (all product lines).

Sturdivant did not consider the afternoon to be too bloody. Hemmings did state that there were no "Scared Cows". Vic.

The preceding memo, written by Vic Vermillion up to Scott South, is referential, informing South of the events of an Engineering Overhead meeting conducted by the corporate-wide overhead red team. Like most referential documents, this one is expressed in declarative sentences, is based on factuality rather than probability, and reveals little emotion. South is the only intended audience; the reference to his secretary, Barbara Benton, indicates only that a copy will be put on file. Although South has doubtless requested this report, it is still organized comprehensively.

There is about the memo some evidence of haste. Vermillion is inconsistent in his use of names: some first names are abbreviated, others omitted, and some are used alone. He is inconsistent in the syntax of the review team's questions, the last two in a "telegraphic" style. That the hasty memo has not been carefully revised is also indicated by the incomplete "Ron is pulling (it) together."

The most obviously oral quality is the repetition of **spent the afternoon** in the first two sentences.

Current office jargon may be seen: **head count** (number of employees), **heads** (employees), **pulling together**. Other special uses of language include **bloody** and **"Sacred Cows."** Both of these highly connotative expressions are offered without emotion, that is without strong persuasive intent, because they are paraphrased from other speakers and are simply being reported here.

This informative document is organized, if at all, according to value. South has apparently requested information on the red team's strategies in order to prepare his own division for their review; therefore, Vermillion gives him first the kinds of information the team requested and fills in details later. The looseness of organization is evident in the last paragraph when the writer offers appropriate closure with a summary statement, "Sturdivant did not consider the afternoon to be too bloody," and then anticlimactically adds, "Hemmings did state that there were no 'Sacred Cows.'"

Vermillion is not a frequent user of the electronic mail system, and his use of hardly legible italics may have been accidental, or he may have been seeking some break from the uniform appearance of most messages. Vermillion makes use of the pre-formatted subject line as a title and instructs the machine to record when South reads the message (Return-Receipt Requested).

Example 3 - Persuasive

Date: 19-Feb-1985 16:22
From: Ralph Redd (REDD, RS)
To: Scott South (SOUTH, SR)
CC: Ben Black (BLACK, BC)
Subject: ERAF Assignment

The following response is submitted for your consideration:

In response to Mickey Clinton's request to Jim Buck for Compserv technical help and support for the ERAF project, at the node level in addition to the CHQ level, I requested Ralph Redd to give me his recommendations. Although he is currently working several other assignments, Ralph has recommended that Charles Korth be assigned to this task.

To optimise use of Charles time and talent on this assignment, the following actions should be taken.

-Assign desk space in the Atlanta Node Managers area so he can work with the voice comm. people on a continuing basis.
-Charles would be expected to spend a majority of his time in this location although he will still have some residual duties in his home department.
-Charles would maintain close coordination with the Compserv designated Teleprocessing engineers at the other nodes and with Hal Hall, the Compserv engineer assigned to CHQ. He will also work closely with Dave Adams for data requirements.
-In addition to defining interfaces and implementing migration plans from leased line service to satellite for a variety of data services-bulk data, interactive synchrounous data, various formats of assync data including SSTT.
-Richard would be available to assist the voice comm. people in their transitions and in setting up the Technical Control Center functions required to operate a complex network. As a EE with many years of comm. experience, he can bring a lot of talent to this arena.

The preceding memo is written by Ralph Redd, one of the older and more self-confident of South's managers, at South's request. It is intended to go out over South's signature, and thus Redd refers to himself in the third person. The aim is to persuade, and the ultimate intended audience, a supervisor in the Atlanta Division, is not listed. The tone is more formal and the information more comprehensive than in most intra-division writing. Because the memo attempts to influence the handling of a Southern Compserv employee to be loaned to Atlanta Division, it is deliberative, as is indicated by **that he be assigned, should be taken, would be expected, can bring about.** The proposed arrangements are to help Korth Carry out his duties in the future.

Although it is unlikely that the message was sent up unreviewed there is some evidence that it has not been carefully revised. In the second paragraph, **he** appears to refer to Ralph Redd than to Charles Korth. The bulleted recommendations are not in parallel structures and do not name actions, as Redd has promised to do in his introduction to the list. The possessive form of **Charles** is without apostrophe, possibly an oral characteristic, since **Charles** sounds possessive. In the last sentence, EE (electrical engineer) is preceded improperly with **a** rather than **an.** Two words are misspelled. The use of **comm** for communication shows that Redd regards the memo as unfinished; in the second use of **comm**, he does not use a period to indicate abbreviation.

The sample contains several examples of the language of electronic communication: **interfaces, migration, synchrounous (sic), assync, network.** Redd also uses the current set phrases of the office: **optimise** for **make the best, assist** for **help, implementing** for **carrying out.** Although **talent** is used literally in the last sentence, it is unusual, and is probably at attempt not to re-use **experience**, a variation that shows some choice or possibly even that same revision has occurred. **Arena**, while apparently metaphoric, is probably intended as a literal synonym of **area**, since no suggestions of a show or contest seems indicated in the case. Regardless of Redd's intent, however, **talent** and **arena** do strike the reader as unusual, and lend emphasis to a sentence that would otherwise lack interest and something of closure to a text that lacks any formal peroration.

Redd uses both quantitative and qualitative arguments as he recommends the arrangements. He identifies cooperation and continuity (in itself quantitative) as the goods to be achieved and suggests that the arrangements he suggests will achieve more of these goods: **optimise, a continuing basis, a majority of his time, maintain close coordination, work closely, many years.** The **variety of data services** is also an argument from quantity, since that which is good for many things is arguably better than that which is good for a few. Qualitatively, Redd presents Korth as talented, helpful, and experienced, qualities which are only indirectly related to Redd's recommendations but which do have some bearing, since Korth's exceptional traits appear to justify the special arrangements requested.

The memo lacks the emotion of strong persuasion, and while an exordium, narratio, and confirmatio are presented, there is no refutation, nor peroration, indicating little anticipation of opposition. Within the memo, the use of a bulleted list to set off items and the choice exhibited in the unusual language of the last sentence are the only discernible attempts at emphasis.

Example 4 - Persuasive

Date: 19-Feb-1985 08:35
From: Greg M. Green (GREEN, GM)
To: Scott South (SOUTH,SS)
To: ()
To: M N Rosen (ROSEN, MN)
To: Shelby Sienna (SIENNA, SHELBY) CC/BSD (LOVE,RP)
To: Paul Pinker (PINKER, PO)
To: (IVVORY, IJ)
To: (IVORRY, IJ)
To: Ike Ivory (Ivory, IJ)
Subject: Charts for Litton Review of Atlanta Divisio

After having reviewed the various background documents, it appears we need to concentrate on the billings and MIS side of the issue and leave internal overhead controls, ratios, etc. to the Compserv review which will come later. It would seem that Jim Buck and Homer would want that to take a Compserv-wide slant. With that in mind, I reccommend the following topics to be covered in the material and charts we prepare:

Historic trends in indirect vs direct billings which highlight the favorable trend toward direct billings (percent of total, absolute numbers, etc.)
-Specific examples of projects and ongoing systems that are now billed direct that were formerly indirect or that traditionally would have been indirect. As many as possible should be included.
-Breakout the systems development cost over the last several years (indirect only) into categories which show how the money was spent to accomplish long term improvement goals. For example, the factory-or-the-future objectives to reduce support labor and span time.
-Show the major projects for 1985 and how they tie to division overhead or other improvement goals and how they relate to the MIS plan. The other 1985 systems development budget should relate to those objectives so that it doesn't appear as one lump sum. Litton will kill us for that. Show the major items in the MIS plan and how the thrust of that plan is to reduce no-touch labor in the factory, etc.

Most of the above are BSD and MIS responsibilities, although Paul has some data. I also think Ike Ivory should be involved. I suggest Ike be assigned the leadership job of pulling this together. I will help but I'm going to be out of town a lot of the time between then and now.

Greg.

This message relates to the impending visit of Lynn Litton, a corporate officer from Chicago, who heads an overhead review "red team," an ad hoc group with extraordinary investigative authority. Green, an experienced manager, suggests to South and to other managers how Southern Compserv should prepare for the review. Since Green has been asked for his suggestions, his persuasive aim is subdued, as is indicated by such language as "it appears," "it would seem," "I recommend . . . think . . . suggest." Most of Green's arguments are based on quantity; he

suggests as many examples as possible, and wants the charts to show improvement in overhead functions (an increased good) and a reduction in support labor, span time, and no-touch labor (evils). Insisting upon Ivory's involvement, he uses a qualitative argument of the person.

Although Green is by nature careful and attentive to detail, he sends an unrevised memo up and out to his supervisor and peers. The () on the heading shows that he has accidentally skipped a line, and it takes three tries before Ike Ivory's name is typed so as to be acceptable to the system. None of these false starts is deleted, nor are the several errors in spelling and typing. Greens's suggestions, although typed in parallel units, are not grammatically parallel; he changes from naming topics to be covered to suggesting actions to be taken. As he progresses, he becomes more oral, the change becoming most noticeable after the contraction **don't** is used. The words in the last paragraph appear to have been presented as they came to mind. Typically of oral language, the passage has several self-reference pronouns. "Kill" and "pulling this together" are less formal. They are also non-literal and thus less referential and more emphatic and persuasive.

Even though the memo is written in response to South's request, it is comprehensive. When the subject line is used as part of the text, as Green obviously intended, the memo contains all parts of the classical oration except the peroration. The absence of a closing statement increases the effect of drifting away that typifies oral discourse. The refutation is brief: "I will help but . . ."

Example 5 - Mixed Referential and Persuasive

Date: 8-Feb-10:05
From: Ben Black (BLACK,BC)
To: Scott South (SOUTH, SR)
CC: Barton Blew (BLEW, BC)
CC: Paul Pinker (PINKER, PT)
CC: Gary Gray (GRAY, GH)
Subject:IRT: TREX BUR

The development VAX will only be the front-end during classified runs. At other time it will be used as the development processor for the other vax processors. There will be shielded patch panel in the room to separate the Pacific room from the other front-end processors. This is the current plan if we can figure out who is to sign off on this. Otherwise Triune connectors is an alternative. . .

Per our discussion this morning - Elizabeth WILL get from SuppliComm a 200 ft cable or we move the PPR and plotter out. The room stays square.

Installations such as the 3224 required only trivial facilities changes and hence Facilities issues like the TREX didnt arise. The last time we expanded the center we ended up funding the Nashville units and other sundries WHICH WE SHOULDNT HAVE HAD TO DO! Everytime we do this we just make it hat much easier for them to get us to do it next time. We need our own data center.

YOu have not seen any charts going to Homer from this Office without your knowledge. Perhaps Tom trained some others????

This memo from Ben Black to Scott South and three managers is in response to a South memo requesting information about facilities for an elaborate new system, a memo in which South has reproached Black for delays and for failing to keep him informed. He accuses Black of having sent unapproved informational charts to Howard Homer in Chicago.

Black's response begins referentially, offering information based on surprise value to answer South's most pressing questions. The declarative sentences are based on facts, and there is no obvious emotion. However, in spite of the referential language, the usually irrepressible Black has created stop-and-start sentences that are shorter and tighter then normal, a rhetorical indication of emotion. By the end of the first paragraph, the emotion emerges more obviously, beginning with the satiric "if we can figure out who is to sign off on this." The ellipses indicate the pull of Black's characteristic ebullience, his openness in saying whatever comes to mind and stopping when he is finished, and his desire to defend himself, a persuasive aim. In the second paragraph, Black tries again to be terse and again is overcoming by his extraversion, using capitals for emphasis ("Elizabeth WILL get from SuppliComm a 200 ft cable") and ellipses to close off when he is ready to quit. In the third paragraph, Black defensively explains the facilities difficulties, but without any pretense at withdrawal; he expresses himself fully and emphatically, his persuasive intent now also evident. South's accusations are bluntly rebutted, and Black, by now in good humor, suggests a funny but unlikely explanation without the slightest obsequiousness. By this time, he is also addressing himself exclusively to South ("YOu have not seen . . ."), who is, after all, the person he is trying to convince and is using non-referential language such as **trivial** and the satiric **sundries**.

The persuasive parts of the memo are both forensic and deliberative. He first deals with events, expressed with past tense verbs: "issues like the Trex didnt arise . . .," "we ended up funding . . .WHICH WE SHOULDN'T HAVE HAD TO DO;" later he recommends for the future: "We need our own data center."

As Black moves from reference to persuasion, he simultaneously moves into the informal sentence structures of oral language: "The last time we expanded the center we ended up funding the Nashville units and other sundries WHICH WE SHOULDNT HAVE HAD TO DO! Everytime we do this we just make it that much easier for them to get us to do it next time." He also uses

capitalization and the closing ???? to reproduce the expressiveness of speech.

The pattern of the memo is naive. The change from referential to persuasive aim actually occurs in the writing. Black writes to furnish information demanded of him, but he does not do so with the purpose of providing narratio for an argument. Giving information is the original purpose, but after having given it, Black begins to try to influence readers to see his view of the overall situation and to defend against the accusation. The referential and persuasive elements are not joined to make a coherent argument. They might just as well have been in separate documents.

Example 6 - Mixed Referential and Persuasive

Date: 24 Feb-1985 15:56
From: Jack Shorter (SHORTER, JK)
To: Norman North (NORTH, NO)
To: Scott South (SOUTH, SR)
To: Sid Center (CENTER, SR)
Subject: Training Product Line

Tim Johnson Gave Claude Lyon a quick de-brief today after his last trip to NC as part of his Computer Related Training red-team study. Tim says that he feels we are in real trouble (all over) in meeting the $15/hr rate. I know that we delivered less than half of the "planned" training for the month of January.

As you probably remember, Jim committed that we would hold the $15 rate in billing the divisions, even if we had to absorb the overage in our overhead rates. Im sure you don't want that to happen any more than I do!! As an aside, I've heard that one of our Finance Managers doesn't think we can do this because the auditors would not allow us to absorb direct cost as an overhead item. This would mean that we would have to direct bill the divisions on an actual rate basis, regardless of what it is. Neither scenario is attractive.

Claude is communicating with your CRT Managers to try to figure out a "get-well" plan. Since this item will no doubt come out loud and clear in Tim's final report to Jim, I can only strongly urge you to get up to speed on what's going on in your CRT product line. JKS

This document of mixed persuasive and referential aims is sent from Jack Shorter, Industrial Relations manager at the Central Compserv home office in Chicago to South and his counterparts at the other two Compserv centers. Shorter's relationship to the problem, an impending discovery of overspending and improper accounting of computer training, is tenuous. He is not responsible for accounting, controlling overhead costs, nor training. As a people-oriented person he informs the managers of the difficulty in order to keep them out of trouble, and thus happier at work, which could possibly be an industrial relations task. In the persuasive elements of the text, Shorter is deliberative, and urges the managers to carry out actions in the future, as may be seen in terms like **figure out, plan, will,** and **get up to speed.**

The memo is initiated by Shorter and is intended to stand alone as a message. One noticeable effect of computer composition is Shorter's initials, placed at the end to substitute for the traditional hand-initialed, thus personalized, initials placed on memos. Such a substitution, although logical, is almost never seen in the sample. The parenthetical **(all over)** is also typical of unrevised computer composed messages, and Shorter also has omitted the apostrophe in I'm. "Im sure you don't want that to happen any more than I do!!," **(all over)** and **scenario** are all faintly satiric.

Shorter's use of quotation marks is an indicator of what Perelman calls "choice" and "communion." It is clear that he has selected these words to be understood in some special sense by his readers. Language that strikes the reader as unusual, and thus chosen, includes **in real trouble** and **scenario**, as well as the metaphoric **"get-well, "loud and clear,** and **up to speed.** It is significant that the non-literal terms are more emotional and are clustered in the brief argumentative portion. Throughout the text are current office terms at Compserv: **de-brief, line** (an accounting figure), **red-term, communicating (talking).**

Shorter's argument is explicit: "I can only strongly urge you get up to speed on what's going on in your CRT product line." By making the I-you division in his warning, he loses an opportunity noted by Corbett, that of gaining credibility by identifying with the reader; he has done something similar in

saying "Im sure you don't want that to happen any more than I do!! and referring to **your** CRT Managers. Although he has also used **we**, meaning the entire organization, through the more referential part of the text, when he begins to persuade, he makes it clear that not he, but the readers, should take action. Such an assessment is accurate; Shorter really **can only strongly urge**, it is not possible for him to show how belief in the validity of the warning other than by informing the others.

The mechanical effects of computer composition are revealed in the pre-formatted heading by Shorter's undiplomatic listing of names in random order, a slipup that would be excused in quarters other than those of industrial relations, which is charged with keeping peace in the corporate family. An experienced secretary would never have allowed such an arrangement.

Shorter emphasized parts of his text by using eccentric punctuation (quotation marks and !!) and by representing the material halfway through as an "aside," which increases communion and lends credit to his warning.

Conclusion:

The overall impression of messages composed and transmitted electronically was that they were much more like speech than were messages composed by drafting and typing. As writers grew more confident with the system, their messages were more like **casual** speech. However, while casual conversations are complete with variations in vocal tone and pace and non-verbal nuances, these written messages are reduced to words on paper or letters on a lighted screen. They may not mean what they say, but they undeniably say what they say and only that. They may have behind them the intent of speech, but they have the effect upon their readers of writing, and of typed print, at that.

The messages express a greater range of personal reaction and a greater intensity of interaction than has been customary in business writing. In contrast to what might have reasonably been predicted, this new medium has been the means of transmitting talk that is truly human in its individuality, its energy, and its appeal.

Thinking in Language: The Fourth Protocol

by
Anita Ross
Technical Communications Consultant

Abstract

When Tom Warren and I discussed this paper, he told me that he thought you would appreciate knowing some of the major problems I encounter when writing for engineers, managers, accountants, and other business personnel. I understand that most of you do not teach classes for students specializing in technical writing but instead teach service courses for students majoring in business, computer science, and engineering. Could I see a show of hands from those of you who teach primarily service courses. I've just fulfilled the first principle of technical writing: Determine your audience.

During my twelve years as a technical writer, I have had the opportunity to work with almost every discipline that requires some kind of technical documentation. I began with flamboyant retail management, from there experienced the opposite emotional spectrum, accountants. Realizing that the future of technical writing lay in the computer industry, I continued my career in software documentation, working with programmers and systems analysts. Three years ago I became a fully initiated technical writer when I began writing military documentation for a defense contractor, even receiving a "secret" security clearance. Because the traditional technical writing environment has long been engineering, a technical writer is not considered "one of the boys" until he or she has written to military specifications, or mil specs, as the jargon goes. The engineers for whom I wrote in the military project presented a special challenge. Many were PhDs and all were specialists in sophisticated electronic intelligence (radar) systems. This year, I began a totally new writing experience, preparation of marketing literature for a data communications company. Though engineers are still one of my resources and part of my audience, I have a new audience and a new resource, product managers and sales personnel. Never absent from any of the diverse personnel for whom I write has always been upper management: vice-presidents of finance, computer operations, administration, and marketing.

I mention the differing personnel I've worked with to emphasize the thesis of this paper. With few exceptions, the vice-presidents, managers, engineers, programmers, accountants, buyers, and salespersons have one common malady related to writing: the inability to think in language. This may seem a strange conclusion to draw. For what other way can we think except in language? I assert that there are other ways and that those ways affect a person's ability to express thoughts in

writing. After communicating both verbally and in writing with some of my engineering friends, I have decided that they do not think in language at all, but in numbers. And just as I am lost when engineers attempt to explain an algorithm for lines of bearing related to an aircraft radar system, so are the engineers lost when I try to explain syntax, parallelism, and other stylistic devices required for effective writing.

Thinking in language can be conceived as a hierarchical structure. This summer I found an excellent analogy. In a seminar on the Defense Data Network, commonly referred to in typical military style with an acronym, I learned about the numerous levels of DDN protocol. As some of you may know, protocol is used in networking to describe communication, commonly called handshaking. DDN protocol consists of complex protocol levels, the most sophisticated level capable of communicating with all levels, but some levels unable to communicate with other levels. If one equates networking with language, writers can communicate with all language levels, but non-writers are limited to a single level or to levels beneath their own. Like the networking protocols, the ability to fluctuate from one language level to another is not possible for many well-educated people.

Let me give you a sentence that provides an example of my concept of thinking in language and and clarifies the protocol levels of language.

The cabinet sits on the floor with only one inch between the floor and the bottom of the cabinet.

Grammatically the sentence is fine. Rules do not apply here. Yet my ability to think in language, to communicate on more than one language or protocol level, caused me to be uncomfortable with the sentence. It was inefficient, redundant. So I rewrote it:

The cabinet clears the floor by only one inch.

Until a person understands why I felt uncomfortable with the first sentence, why the second sentence is preferable to the first, and how I arrived at the second sentence, he or she is not thinking in language, as I am defining the process.

Another example provides further clarification of my thesis. There are business and technical people who can write with great clarity. They possess the protocol between language and technology. As a result, I always enjoy reading their documents. This spring a young engineer improved a brochure I was writing by changing "The software allows users to switch easily from one application to another" to "The software allows users to switch among applications at will." I liked that. The phrase "at will" expresses so much more than "easily". The young man was thinking in language.

To challenge my thesis, you might reply that a person's

inability to think in language stems from lack of interest in language or lack of innate language sense. Certainly both reasons are valid, but not completely. To use another analogy from the computer industry, perhaps the person's RAM is just too full to accommodate another program. More likely, the person may want to think on the writing level, but perhaps it is too late in his or her career to input the complex language database.

What does all of this have to do with teaching technical writing, you may be asking. It relates to the approach we take to the teaching of writing. Every technical writing textbook I have examined appears to be a freshman composition text, clothed in technical garb covering the various forms of technical documents. The grammar review and forms approach may be fine for students who plan to become technical writers, but few engineers or accountants will ever write a proposal, and they have long ago lost interest in that confusing concept, passive voice, even though they are its victims. These people have a far more fundamental need.

As language experts, we possess the necessary protocol to see the relationship between grammatical rules and writing. For too many of my business and technical colleagues, no such protocol exists. All of this leads me to answer Tom Warren's question about the writing problems I encounter.

First, I see people who regret their inability to express thoughts in writing. Yet many of these people feel they are ill-equipped to overcome this lack of writing ability. Therefore, a primary goal of any technical writing class should be to emphasize the importance of writing in a business and technical environment. The notion by most students that passing freshman composition frees them forever from writing another word must be replaced by the understanding that the inability to write will hinder their career in devastating ways. They may be denied an exciting position they want above all others or refused promotion. Most often, those business and technical people who cannot write effectively remain frustrated because they cannot convince management that their ideas are valuable. I see this frustration daily, for anyone who has ever been active in business knows a manager's first reaction to any suggestion: Put it in a memo.

My first observation leads to the second. I hear college English teachers deriding the teaching of technical writing. If any of you feel that way, I would plead with you to take such teaching with much more seriousness. Writing in business and technology will never improve unless this attitude changes. Only the teacher who values the use of written language in a non-literary environment will be able to convince technical or business students that they too must value good writing.

The next problem I see exists as an essential characteristic of my thesis: thinking in language. I see people who need organizational, analytical, and synthesizing skills. Inevitably when I edit an engineering document I have to sort and rearrange ideas. I am amazed that a programmer who sits for days writing in a programming language, an exercise based entirely on logic, becomes so illogical when explaining that same program in the English language. I'm certain that many of you have shared my bewilderment when you grade the papers of engineering and computer science students.

Discussing this problem with my technical friends, I discover that most of them admit their inability to transfer the logic required in the mathematically-based programming language to the logic required in written English. They fail to make this transfer because they lack the understanding that English possesses a logic, a frustrating fact to those of you who have spent hours explaining the structure of the sentence, paragraph and essay. My technical colleagues frequently come to me with writing questions related to structure: How do I begin? How do I organize the parts of information I'm trying to convey? Obviously, no handshaking has occurred between technical documentation and the many writing assignments these people have completed throughout their sixteen or more years of education. The program somehow failed to establish the protocol.

This realization leads me to a fourth observation. My technical and business colleagues lack writing skills directly related to the type of documentation required by their field of study. I believe this lack of understanding comes from technical writing classes whose scope is too broad. A certain commonality exists among the writing required for business, engineering, and computer science majors. Yet differences exist that must be given expression in the technical writing course. Programmers and engineers need to be able to organize and summarize the way their program, device, or design works. Likewise, accountants need to be able to analyze and summarize the details found in an audit. Though all of this writing requires similar skills, the accountants, programmers, and engineers see themselves as having quite different needs. They think in differing languages. Teachers must then recognize those distinctions and adjust their teaching accordingly by adhering to that cardinal principle of technical writing: Define your audience. As writers and teachers of writing, we can see clearly that all expository writing relates to the basic paragraph: thesis, details, conclusion. But we cannot expect non-writers to grasp this relationship, because they do not think on the same level of language as we do. It is therefore our responsibility to develop the protocol that will enable them to think in the written language applicable to their discipline.

I also perceive a more serious problem: a lack of respect

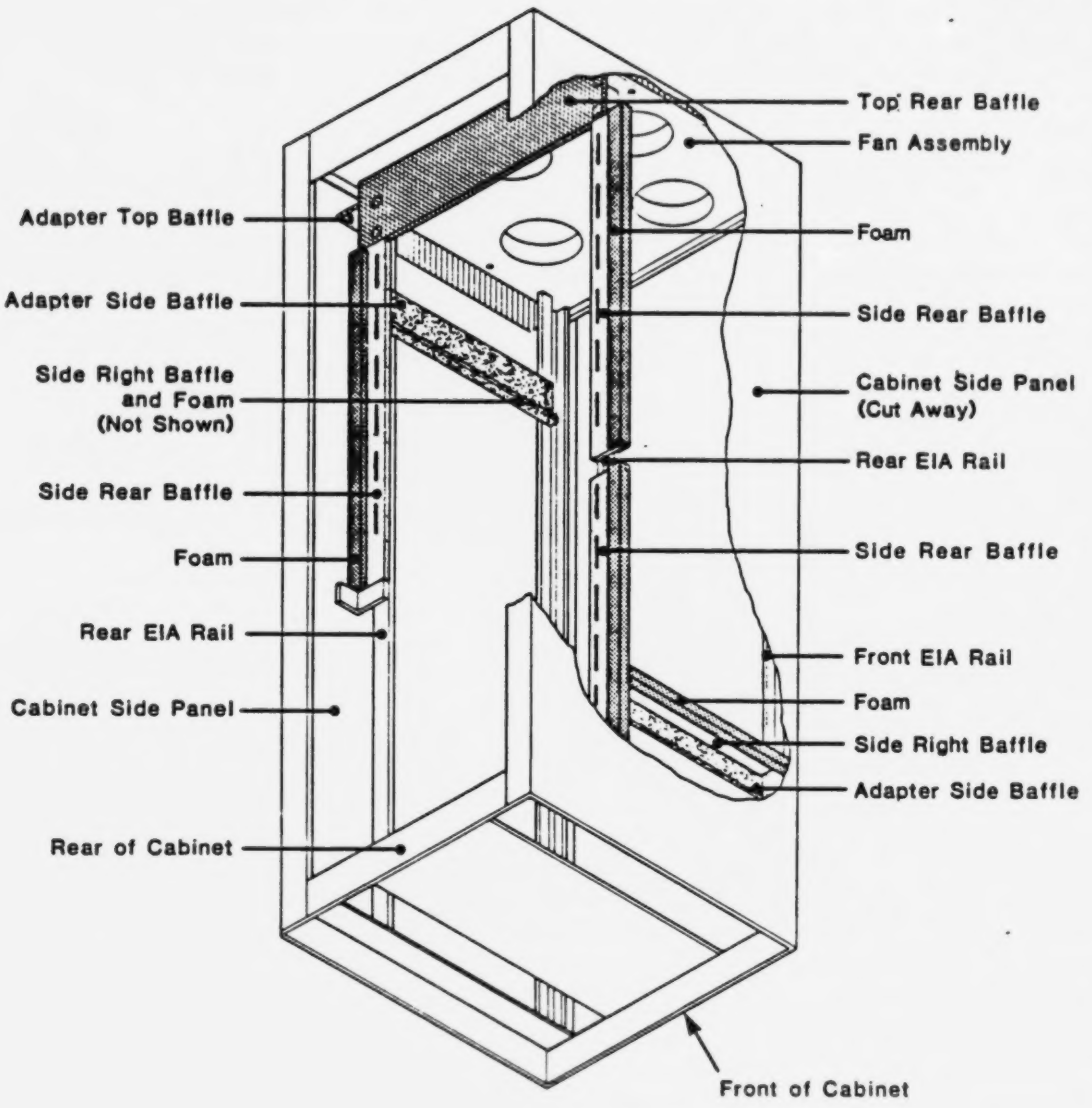
for language. Those who perpetuate this disregard are managers and company officers, for they have the final authority over what is and is not published. As we all know, some people do make it to the top through skills other than language. I strongly suspect that the arrogance of power enables these people to prevail, at last, over the written word, a position they have probably longed for since fourth grade English. By arrogance, I am not referring to the personality of the manager or VP. Most often they are pleasant to work with and appreciate the writer's skill. But when the final edit of a document rests with someone unable to think in language, the public is afflicted with sentences typical of this example:

> **Through bisync emulation and standard NCP control of 3270 bisync driven lines, async terminals or personal computers with standard async can access SNA applications accessible through bisync.**

I wrote part of that sentence; a VP of Engineering finished it. He could never explain to me the meaning of the last phrase. Another recent experience further clarifies my point. A VP of Marketing changed a bullet phrase on a marketing brochure I had written because the phrase did not match a similar one in an unrelated brochure. I wrote the bullet phrases of my brochure in an adjective/noun structure; the other writer had used a verb structure. Both brochures were acceptable as they stood, but the VP insisted that the bullet items match. When I attempted to explain the structural language differences of the brochures to the VP, he did not understand. Consequently, he solved the problem to his satisfaction by saying that no one would know the difference. He was probably correct. I doubt if the majority of the people who read the brochure will consciously acknowledge that the brochure lacks parallel structure. But many of them will mentally stumble over the inconsistent phrase.

This mental stumbling raises another point related to thinking in language: the way people read and understand. Too many of my technical colleagues suffer from the malady that afflicts the engineer who placed this design in an installation manual:

[see next page]



Baffle Locations (View from Back of Cabinet)

To view the cabinet as shown in the drawing, one would have to lie on his back underneath the structure, an unlikely occurrence because the cabinet clears the floor by only one inch. In addition, the drawing presents an optical illusion. Language contains a similar distortion: ambiguity. Ambiguous statements, as I'm sure many of you know, are common errors in technical documents. As Richard Lanham points out in his excellent book, Revising Business Prose, too often in business and technical documents it is unclear who is kicking whom.

Now I know what many of you are thinking. First, the English department budget does not allow separate classes for computer science and accounting majors. Second, if students would only learn to avoid the passive voice, their writing would not be ambiguous. Third, if they would learn the structure of the paragraph, they would know how to write that memo the manager requested. Fourth, I have not told you anything you did not already know, so what's the point of this paper. All I am really trying to say is that English classes have often failed in their attempts to establish a protocol whereby students can relate the writing of an essay to the writing of a memo, manual, program description, or audit report. As a result, technical writing classes need, above all else, to establish that protocol which enables students to begin thinking in language.

Finally, I am reminded of Alexander Graham Bell's memorable words, "Mr. Watson, come here, I want you." We must get Watson on the line before the conversation can begin.

Determining Verbal/Visual Orientation: A Heuristic

By Sam Dragga
Texas A & M University

Communications training emphasizes verbal expression and gives insufficient attention to the power and scope of visual display. The integration of verbal and visual rhetoric, however, has developed as a characteristic of written discourse. Writers inexperienced with this integration require guidelines for determining the verbal/visual composition of their texts. The heuristic here introduced comprises seven factors, each judged on a scale of 1-5: Discourse Aim, Discourse Urgency, Discourse Access, Reader's Motivation, Reader's Education, Reader's Familiarity with Subject, and Reader's Environment. A numerical score guides the writer in deciding the verbal/visual display of information.

NOTE: Professor Dragga asks that his entire paper not be distributed because of copyright restrictions. The material will soon appear in book form.

Teaching "On-Site" Technical Writing Courses

by Sara L. Brown
Tulsa Junior College

Abstract

Since its inception, Tulsa Junior College has worked with businesses in Tulsa to meet their educational needs. We do this with special seminars, workshops, and mini-courses, most of which are non-credit. Often, though, companies want us to offer credit courses "on-site." These courses offer a rare opportunity for TJC not only to meet the needs of ourcommunity but also to enhance credit enrollment for the college.

The English Department at TJC has encouraged local companies to offer both our business communications and our technical writing courses at their businesses after work hours. In the past, we have offered courses at a variety of places: St. John's Hospital, McDonnell-Douglass, Rockwell International, Utica National Bank and Hilti, Inc. Each semester seems to bring more inquiries about the possibility of offering additional "on-site" courses.

The criteria are simple: The businesses must guarantee an enrollment of eleven, and they must provide a classroom with basic visual aids such as overhead projectors and screens. With those relatively easy criteria established, the actual class agenda is worked out between the instructor and a representative from the local business.

Teaching a technical writing course in such a setting provides unique advantages to the instructor and to the business. The advantages to the instructor are several. First, all students in the class write about the same organization. Since actual work is used, there is a reality to these courses that cannot exist in the usual academic situation. And, most importantly, the instructor has access to "real work" technical writing situations that provides insight one can never obtained from a textbook alone. On the other side, the business is offered the advantage of tailor-made classes, geared to the individual writing needs of its staff but at a much lower cost than consultants charge. The employees feel the company cares enough about their work to give them the opportunity to receive, without charge to them, three hours of college credit in classes designed to meet their writing needs, located at a convenient time, and in a convenient place.

Because students receive credit for English 2333: Technical Writing, the course must have approximately the same quantity of work as the on-campus Technical Writing classes. The "on-site" class, therefore, needs to be carefully structured to meet the

needs of the students and also meet the requirements of the college. My regular on-campus course requires the following pieces of writing:

Audience Analysis Paper
Extended Definition
Visual Aid Assignment
Two Informal Reports
Technical Description
Technical Procedure
Abstract
Claim/Adjustment Letters
Resume/Job Apprication Letters
Major Project (Proposal, Analysis, or Manual)
Oral Presentation

In trying to use these requirements as a basis for the "on-site" course, I first meet with a representative of the company to discuss the kind of writings its employees do and the needs they seem to have. Initially, I ask for samples of the employees' writing--especially samples of what the company feels meets its standards. From these discussions, and from the writing samples, I can begin to assess the needs and expectations of the business. If the company uses a particular style manual, I obtain a copy. I can then plan to teach the students to write clearly and concisely within the confines of that manual. One of the best examples of this is with companies who hold military contracts with the government. Using military standards, the class edits specific work to meet requirements of the military, the company, and the instructor.

Having investigated the company's priorities, I begin the course with one of the most important areas of discussion for technical writers---audience analysis. Although I work with audience analysis in all my classes, it becomes especially appropriate when teaching people within the same work environment. As a class, the "on-site" group works with organizational charts. If the business does not have an organizational chart, we will build one. Then each person places him/herself in the organization and both names and labels each other person he/she works directly with or for. This becomes invaluable later as we work on specific writing assignments. One audience assignment I use in an "on-site" class that I don't "on campus" involves the audience index cards. Student make an index card for each potential reader in their company. These cards would include the following headings:

Name:
Title:
Role within the Organization:

Education--Levels, Fields, Years:
Past Professional Experiences and Roles:
Knowledge of Your Technical Area:
Knowledge of Your Technical Responsibilities:
Other Staff affected by His/Her Reaction to Report:
Personal Characteristics that could influence
Reactions (age, attitudes, personal concerns, etc.):

By using these index cards, writers have quick access to necessary information about their readers.

Once standards of style and methods for analyzing audience are clear, I work with the formats required bythe "on-site" company. Most businesses want an emphasis on the memo, particularly the memo report; therefore, the class will write several of these short reports. Many times, actual memo reports are written and rewritten during classtime. At other times, I simulate writing situations that could easily take place. Ideas for these writing situations come from managers who share ideas about specific problems that have existed or purchases that need to be made. In discussing these situations, I include all data needed, but not solutions. Throughout these report assignments, students learn problem solving techniques appropriate to their own business. They also discuss candidly company policy and attitudes. After determining the most appropriate format, all students write the memo report to the necessary audience(s).

Besides memo reports, procedure writing is another much requested format. Since there are always procedures that need to be written, it is never difficult to get a list of simple procedures used in the various departments represented in the class. Each student then picks one procedure to use for the assignment. If there is a standard format used by the company, the class will use that format. Regardless of format, I require the procedure to be written in an active voice, imperative mood style. If by chance there is no company standard format, the class will discuss various procedure formats--playscript, information mapping, flowcharting, for example--and will choose the format they feel will work in their particular department. After these have been written, the class then critiques the various procedures as to clarity and style. Many times, this practice carries over when "real" procedure manuals are revised or rewritten.

Letterwriting always seems to be more popular in "on-site" courses than in the "on-campus" setting. This is probably true because the need for good letterwriting is only evident when one is forced to read and write letters many times a day. Because the letters assigned are always the kinds of letters the students normally write, the class members themselves determine the types assigned. Time is spent talking about the psychology of business letters and the ways writers can achieve the proper tone and word

choice to convey the message to the reader. The class writes both original letters and revisions of letters received. In fact, almost all class editing comes from letters, reports, and memos actually written or received by students. I do ask that these be turned in ahead of time so they can be re-typed with names and titles changed (to protect the guilty). Although all these assignments are important, the major project, however, becomes the focal point of every "on-site" class. The students work with their immediate supervisor, who either becomes a consultant on the project or assigns some other manager to be the consultant on the project. The consultant and the student determine an actual project for the student. Much of this assignment will be done on company time; therefore, the project needs to be one from which the company will benefit. For example, in the past I have had students present proposals for major policy changes, write procedure manuals for accounting departments, plan and implement weight-loss programs for hospital employees, update maintenance manuals, and research and recommend a new computer system for the company. The subjects for the major projects are limited only by the needs of the company and the imagination of the student and consultant. Once the project is approved by the consultant, the students do all the research, analysis, and writing. Throughout the writing of the project, the consultant functions only as a resource person . When the project is finished, the consultant will read and approve the final product, but the instructor will give the final grade. These projects are generally well received and are many times used by the company, sometimes in the form written, sometimes after modification.

The last assignment for the course is the oral presentation of this major project. Some companies allow us to use a regular conference room to create an authentic atmosphere, and many times supervisors who have been consultants join the class to hear the presentation. This is, of course, only done if the student approves the visit, but most feel it is to their advantage to do so. In fact, writing the major project can create some added rewards to the student. Throughout the writing of the major project, the student must work closely with his supervisor, who most often is his primary or immediate audience in real life writing situations. Because of this closeness, the supervisor many times feels comfortable sharing information that otherwise would not be shared. This gives the student insight about areas that his supervisor wants addressed in the "real" writing assigned. The communication that develops between the supervisor and student while working on the project seems to carry over into the real work situation.

Not only do the students benefit from the course. An on-site course seems to be an "all-win" situation: The instructor is rewarded by highly motivated students who know they need help and appreciate the efforts of the instructor. The

business is rewarded by employees who produce clear, concise writing, and the college, always looking for ways to be a positive force in the community, has, by taking the course to the students, made at least one more business aware of the quality of its programs.

Teaching Technical Writing to ESL Students

by

Gail Nash
Oklahoma State University

Abstract

Technical writing teachers need to prepare for the special writing problems that international students bring into the technical writing classroom. They can begin by learning the cultural reasons behind the students' errors. This paper shows the relationship between the cultural backgrounds of Arab, Japanese, and German students and the writing errors they make. Another way to prepare for the special needs of ESL students is to know how other teachers meet these needs. The second part of this paper reviews various methods technical writing or ESL teachers use to teach technical writing to international students.

TEACHING TECHNICAL WRITING TO ESL STUDENTS

After teaching English as a Second Language (ESL) for 3 years, I began a Master's degree in technical writing at Oklahoma State University. I soon found that my background in ESL mixed easily with technical writing because more and more ESL students are coming to American universities and enrolling in technical or professional writing classes. When they enter these classes, they find a different style of writing, one for which their ESL composition classes did not prepare them.

In fact, before entering technical writing classes, most ESL students have been taking writing classes that were either exclusively for international students or were classes in academic writing, such as freshman composition. When they enter a heterogeneous technical writing class, they encounter a different style of writing as well as a different atmosphere.

Unfortunately, technical writing teachers are usually not prepared for the unusual demands of ESL students; they find that their challenge as writing teachers has doubled. Not only must they teach students to write technical prose, but they must also deal with the special writing problems these international students present.

When it comes to discussing the problems ESL students have in learning technical writing, most teachers can name 3 or 4 troublesome areas without having to think long. The writing problems range from specific (prepositions, articles, and verb

tenses) to general (tone, organization, and diction). Peter Master lists grammatical problems: articles, relative clauses, compound nouns and adjectives, and passive voice. Thomas Mage discusses stylistic difficulties, such as the function of a paragraph. According to Mage, ESL students often misunderstand the function of a paragraph. If they believe that a new paragraph indicates a new subject, they may write an entire essay or report in one paragraph. It is difficult to say which problems are the worst and hardest to correct.

As a result, the course proves frustrating for both teacher and student. In order to help technical writing teachers understand and prepare for the writing needs of ESL students, I discuss

- [] the effects of culture on student writing and
- [] the methods technical writing teachers use with ESL students.

The research for this paper comes from both formal and informal surveys. By formal I refer to the articles and papers I researched from journals and books in the fields of technical writing, ESL, English for Science and Technology (EST), and English for Special Purposes (ESP). Informal refers to the discussions I have had with technical writing and ESL teachers about teaching technical writing to international students. To stay with recent research, I include only articles published since 1978. The only exception is an article by Robert Kaplan. I include his article because his theory is a cornerstone in ESL methodology, and teachers who work with international students will profit by his work.

THE EFFECTS OF CULTURE

At first glance, teachers may only see a mixture of grammatical and stylistic mistakes in their students' writing and ignore the relationship between the type of errors and the student's nationality. Knowing that some of these writing problems are linked to the student's culture helps teachers understand their students' errors. And, knowing what other technical writing teachers do with their ESL students helps teachers know how to correct their students' errors.

In 1966, Robert Kaplan wrote about the relationship between culture and thought. He suggested that different cultures reason differently and that these differences cause writing problems for ESL students. His article sparked interest among other researchers and today most scholars in ESL agree that culture affects language and language affects thought which affects writing. Janet Constantinidies, for one, notes that the "biggest problem" for foreign students is learning to use the English rhetorical modes to present reasoning in technical writing (151). Indeed, teachers must be alert to how culture influences their

students' writing.

In this section, I discuss how culture affects the writing of students from Arabia, Japan, and Germany. These language groups represent the majority of our ESL students, those from the Middle East, the Orient, and Europe.

ARAB STUDENTS*

First of all, technical writing in English requires precise word choice. But as Parkin points out, while we expect accuracy and brevity, many other cultures prefer ornate, flowery prose. The Arab culture is one example. In fact, Carol Lipson reports that in Arabic "eloquence is related to exaggeration" (235). Her research shows that the Arabic language leans heavily on emotional appeal even though the Arabs see their language as factual. In their way of thinking, statements such as "Members of that culture are inferior to the rest of the world" are mere statements of fact. Conversely, statements that Americans consider clearly factual, such as "He is responsible and completes his tasks" seem neutral and weak to Arabs. To them, the tone of a statement outweighs the content (235). So, a statement with a strong tone (like the first example) is more factual that a statement with a mild or moderate tone (like the last one).

Secondly, Lipson warns technical writing teachers to be prepared for problems in "connection and unity" (236). Arabic writers view paragraphs as a series of parallel constructions. Because Arab students value coordination, they often connect several sentences with <u>and</u> (Thompson-Panos, and Thomas-Ruzic). Therefore, technical writing teachers with Arab students can expect to find strings of sentences hooked together by <u>and</u>.

*According to Lipson and others, the language problems of Arabs apply to Iranians as well.

JAPANESE STUDENTS

With Japanese students, instead of exaggeration and overstatement, teachers get indirect statements that hint at the problem (Lipson, 1983). Constantinides comments that international students have trouble accepting the idea that a subordinate can suggest something to a superior (141). Her observation certainly pertains to Japanese students. Because their culture has taught them to respect other people's feelings and opinions, they prefer to write around the topic rather than directly state a point. In fact, Hinds notes that in Japanese a conclusion needs only to show a doubt or raise a question as opposed to the definitive, hard-selling conclusion that occurs in English. Furthermore, in a contrastive analysis of Japanese and English, he found that Japanese writing style allowed what seemed

to English readers as unconnected sprawl.

Peter Master suggests that Japanese students tend to write in passive voice because their system of reasoning differs from ours. For example, a sentence such as "The lathe operates at high speed" appears illogical to them because a lathe cannot operate without a human agent. Americans, however, accept a "sense of causation" that is obvious enough not to be stated (51). Evidently, that same "sense" is not part of Japanese logic. Therefore, with Japanese students, teachers can expect writing that is vague, ambiguous, and indirect.

Shinoda lists the following areas as problem spots for Japanese students: articles, tenses, auxiliary verbs, subjunctive mood, and prepositions. However, those problems are generally common to all ESL students, not only those from Japan.

GERMAN STUDENTS

Unlike the Arabs and Japanese, German students neither overstate nor understate, and they certainly have no problem with being vague. In fact, Carol Lipson notes that Germans tend to include so much detail that American readers get lost. Clyne adds that linearity and repetition* are less important in German writing. That is, Germans have no system that begins by summarizing the main points. Yet, Americans depend on introductions to supply an outline of the main points (Lipson, 1983).

The danger with German students is that teachers expect fewer problems from them because they are from a western culture. Even so, German reasoning differs from that of Americans. German students consider historical facts and indepth explanations crucial to writing. Therefore, German writers are likely to insert information in the body of a report that American writers view as unnecessary for the audience or purpose (Lipson, 1983). Clyne agrees with Lipson and says that Germans stress content (the more the better) over form. Therefore, teachers with German students need to teach appropriate use of detail as well as organization.

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*By repetition, I am not referring to needless redundancy. I am referring to the kind of repetition we find helpful, such as introductions that tell us "this is what I'm going to say".

Certainly, not all errors result from a student's culture, but knowing what to expect from certain language groups helps prepare us for the task of teaching English to ESL students. Obviously, this study is not exhaustive; I have not discussed students who come from countries other than Arabia, Japan, and Germany. I used these countries because most of the research

dealt with these language groups.

SUGGESTIONS

It helps to know why ESL students make the mistakes they do. By understanding the link between culture and error, we can prepare for certain problems. It also helps us be more understanding of their mistakes. We know that they make these errors not because they are slothful or slow language learners, but because they are learning a new way of thinking, one which conflicts with what they have been taught.

But understanding why they make these errors only takes us so far; we need to know how to eliminate persistent errors in ESL writing. From my formal and informal surveys, I found that generally teachers take one or more of the following approaches: separate courses, workshops, writing labs, or conferences.

SEPARATE COURSES

Teachers can develop a separate course for foreign students: Andrew Rossiter suggests using ecology as the main subject of a technical writing course for ESL students; Thomas Huckin and Leslie Olsen devised a course called "Generalized ESP", which combines ESL with English for Special Purposes (ESP); Joan Pavelich describes a remedial program for ESL students with writing problems; and Sheryl Pearson calls for more English of Science and Technology (EST) classes to meet the needs of ESL technical professionals.

For teachers who can design their own syllabi, Janet Constantinides describes a technical writing class designed for both native and non-native speakers of English. The assignments range from a letter of application to a formal report. She includes various reports in-between and arranges the assignments so that each assignment leads into the next.

However, technical writing teachers may not be at liberty to design new or separate classes for the international students. Many technical writing teachers receive the course syllabus with a textbook and instructions to do their best. The teachers and the students have to make do with what they have, and usually what they have is a class mixed with native and non-native English speakers, all at varying levels of writing ability. Obviously, the teacher cannot base the class on the particular needs of the ESL students and ignore the native speakers. What, then, do these teachers do with the handful of ESL students who need special attention? Some teachers have found intensive workshops helpful.

WORKSHOPS

If the number of ESL students is large enough, teachers might consider having a weekend workshop specifically for the ESL students. Sherry Southard describes a workshop approach to handling the special needs of ESL students. Her 10 hour workshop covers a wide range of topics from a definition of technical writing to formal reports. Highlights from the sessions include audience analysis, technical writing style, support graphics, and oral presentations.

Workshops are particularly helpful for clarifying terms or strategies used in technical writing, such as listing, graphics, headings, and so on. A workshop allows time for careful explanation that a 50 or 75 minute class does not allow time for. But once again, a workshop may not always be practical or possible. What do teachers do then?

WRITING LABS

If a writing lab is available, many teachers send their ESL students there. Because writing lab tutors provide one-on-one instruction, they can be helpful in dealing with ESL students; the tutors can be even more effective if they are familiar with technical writing style and ESL. After assigning a student to the writing lab, the teacher should contact the tutor regularly to keep track of the student's work and attendance. With the teacher and tutor working together, they can help the student get the special training necessary for ESL students learning technical writing in English.

CONFERENCES

One of the most practical and easiest ways of working with the problems of ESL students is through teacher-student conferences. Teachers can accomplish in conferences the same type of work done in labs and workshops. Conferences give students one-on-one instruction and provide the teacher with an opportunity to explain cultural differences in writing. Teachers who are familiar with a student's native language may try to illustrate the problem with an example from the student's first language.

Teachers who cannot design a separate course can choose or combine workshops, writing labs, or conferences as ways to help their ESL students. Whichever approach teachers take, they must still decide how to eliminate error. That is, what techniques can they use to correct error?

TECHNIQUES

Teachers generally begin with some kind of error analysis.

When teachers analyze students' errors, Thomas Mage cautions them to analyze the writing in the overall context of the passage rather than to limit analysis to the sentence level. Whether the analysis is indepth or brief, teachers must determine what problems exist and which ones take priority. These techniques deal with 4 problems ESL students have with technical writing: organization and style, articles, prepositions, and wordiness.

ORGANIZATION AND STYLE

To teach international students technical writing style and organization, teachers may use text analysis. Sheryl Pearson, for example, has students read and analyze technical English texts because she believes that understanding the demands a complex text places on its readers makes writers more sensitive to the readability and clarity of their own texts. Robert Weissberg agrees that analyzing technical texts helps students understand technical style. His own analysis has revealed that most technical English sentences take a "given/new" structure. ("Given" refers to the topic while "new" refers to the comment following the topic.) He teaches students to follow the "given/new" principle when they write; he also encourages students to use exact work repetition because it strengthens the cohesion of their writing.

ARTICLES

For ESL students and their teachers, mastering the use of the article seems impossible. Huckin has devised a useful flow diagram that guides students to the correct use of the English article. (See Appendix I) Master suggests that students copy a section of text from a textbook and delete the articles. After a few days, students try to fill in the correct article. When they finish, they have the original text as a key. While these techniques may be useful, progress will be slow. Teachers can expect ESL students to require extensive work in this area.

PREPOSITIONS

Prepositions create such problems that often both teachers and students throw up their hands in despair. I have found no research dealing with how to teach prepositions to ESL students in technical writing classes. In ESL, on approach used is teaching students to memorize verbs that generally carry a preposition, such as **account for, ask about, interested in, look at** and so on. Other approaches veer away from directly teaching prepositions and allow students to learn on their own. Some teachers may set rules arbitrarily, such as "Don't use more than 2 prepositions at the end of a sentence." However, in the end students are left with a myriad of prepositions for which few rules apply.

Prepositions and articles lend themselves to grammatical exercises and drills. Although drill work has had a bad name for the past few years, teachers such as Gerry Abbott and Gary Yeats urge us to re-evaluate that approach. They suggest that drills are not totally useless or meaningless. In fact, we need to use them at times as long as we can use them meaningfully. Meaningfully suggests that students understand what the exercise is for and how it applies to their writing.)

WORDINESS

To eliminate wordiness, Master suggests two techniques: take out unnecessary **it** and **there** subjects and change nominalizations to verbs. Master notes that international students are more receptive to the latter technique than are American students because most ESL students are not "under the misconception" that flowery, ornate prose is better (56).

CONCLUSION

The problem with many of these articles is that they do not give the technical writing teacher solutions to the specific writing problems of ESL students. Huckin's flow diagram is a step in the right direction. But, we need more information about pedagogical tips and strategies that work.

Janet Constantinidies asks for more information "about the contrastive analysis of scientific and technical writing in other languages" (142). And, Ann Johns comments that instructors need to know what the research and curriculum in ESL/applied linguistics say about the needs of ESL business students and professionals. We also need practical solutions. When it comes to working with the writing problems of the international students, we need to know what works.

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APPENDIX

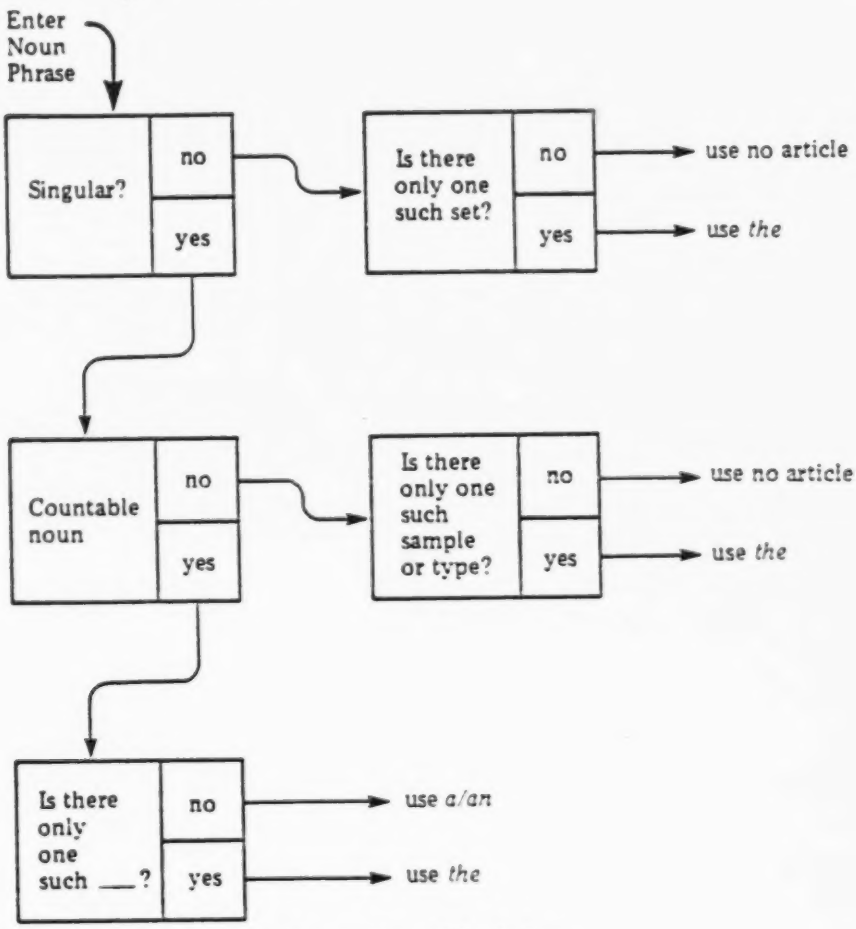

Figure 3. Flow diagram for correct article choices.

From: Huckin, Thomas. "Teaching the Use of English Articles to Non-Native Speakers in Technical Writing Classes," in Courses, Components, and Exercises in Technical Communication, ed. Dwight W. Stevenson. Urbana, IL: NCTE, 1981, p. 223.